

# Headquarters U.S. Air Force

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*Integrity - Service - Excellence*



## AFCEE's ERP-O: A Journey from System Optimization to Program Optimization

Year of the Air Force  
Family



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**Air Force Center for Engineering and the Environment**

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# Outline

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**Introduction**

**Evolution**

**Partnerships**

**Summary**



# Optimization Evolution

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Evolution (1997 – 2007)

Starting point

Breakthrough

Conceptual Site Models

Looking to the end

Big Picture

What more can go wrong

Net no harm

Even Bigger Picture

Monitoring Optimization (LTM)

RSO/RPO (RA-O)

RSC

Exit Strategy

PBM

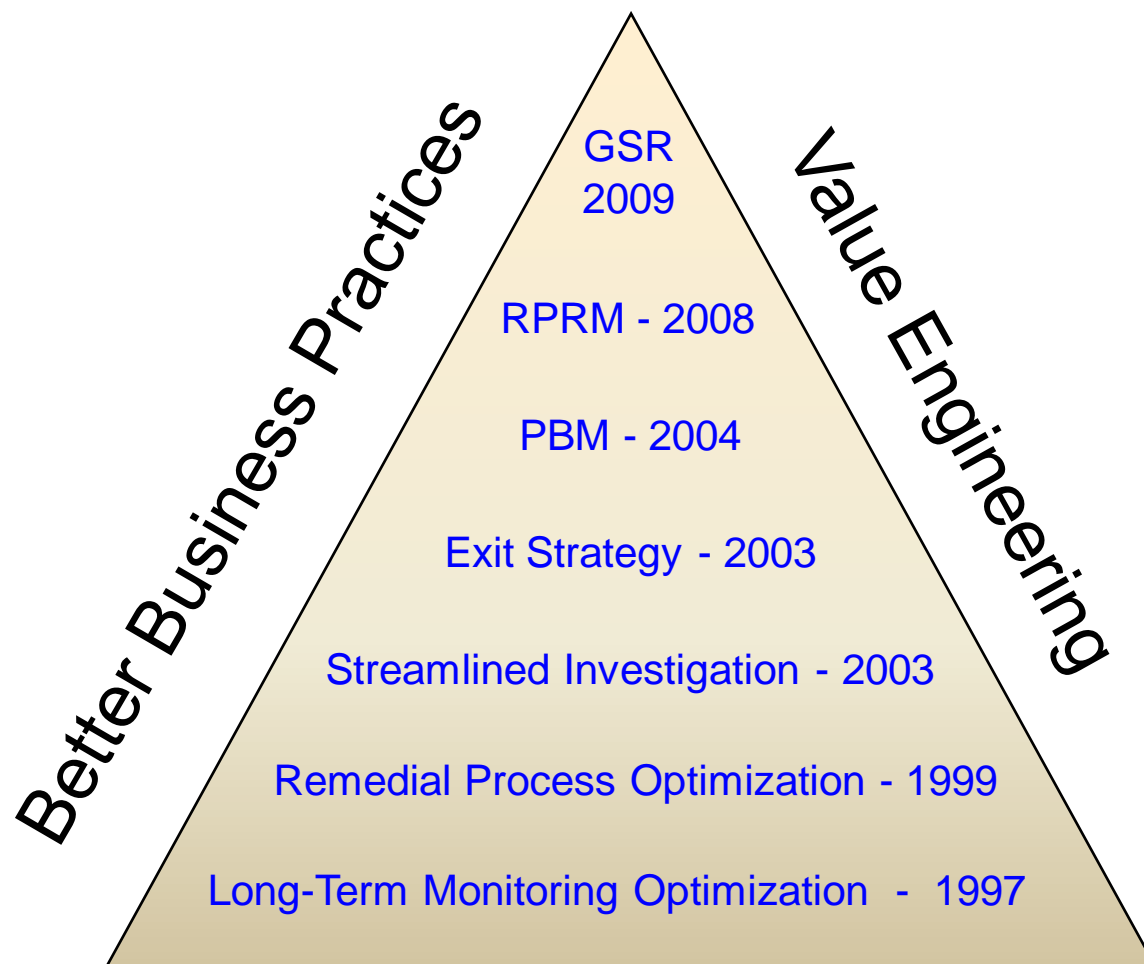
RPRM

GSR

ERP-O



# Foundation for ERP-O





## What we are doing now



# ERP-O Definition

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## *Definition:*

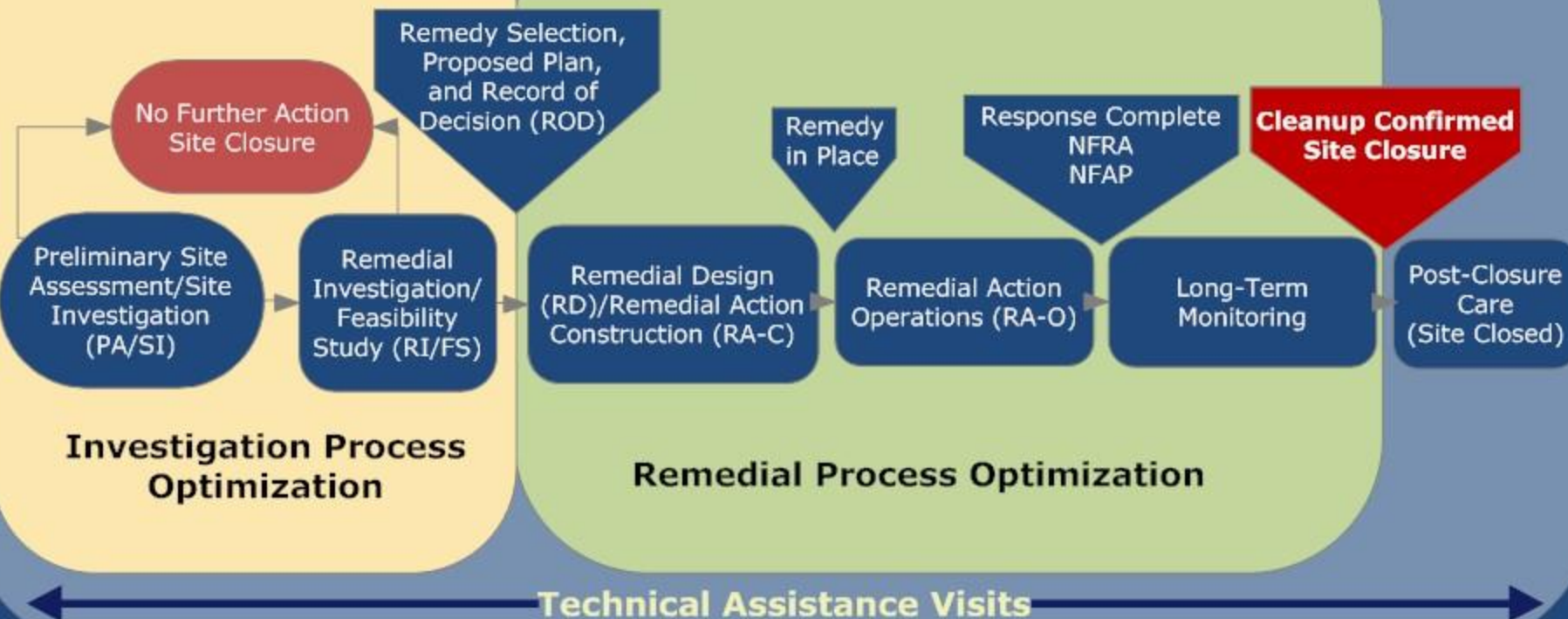
Environmental Restoration Program Optimization (ERP-O) is a comprehensive and systematic review of an installation's past, current and planned cleanup activities whose goal is to ensure protection of human health and the environment over the entire restoration life-cycle at minimal risk and optimal costs

**ERP-O provides all the needed tools to manage risk and  
complies with AFSO21**



# ERP-O Flow Chart

## Environmental Restoration Program Optimization







# Investigation Process Optimization (IPO)

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## *Definition:*

An Iterative/Systematic Planning Approach for  
*Evaluating Remedial Study Programs*  
with the Goal of Improving Overall:

- ✓ Study Program Effectiveness
- ✓ Time and Cost to Achieve Site RIP Milestone
- ✓ Timely Feedback to Decision Makers

A component of the overall AFCEE ERP-O



# Remedial Process Optimization (RPO)

## *Definition:*

An Iterative/Systematic Planning Approach for  
*Evaluating Existing/Proposed Remediation  
Processes* with the Goal of Improving Overall:

- ✓ Control Effectiveness
- ✓ Site Cleanup Time and Costs
- ✓ Timely Feedback to Decision Makers

A component of the overall AFCEE ERP-O



# Remedial Process Optimization (RPO)

## *Definition:*

An Iterative/Systematic Planning Approach for  
*Evaluating Existing/Proposed Remediation  
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- ✓ Control Effectiveness
- ✓ Site Cleanup Time and Costs
- ✓ Timely Feedback to Decision Makers

A component of the overall AFCEE ERP-O



# Technical Assistance

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## *Definition:*

A Systematic Analytical Approach for *resolution of regulatory, technical, contractual, programmatic issues*

- ✓ Conceptual Site Models and Exit Strategies
- ✓ Decision Documents
- ✓ Contractual Strategies
- ✓ Decision Logic
- ✓ Background Studies

**A component of the overall AFCEE ERP-O**



# Where we have been

● ERP-O Visits Completed





# Where are we in execution of ERP-O?



# Where we are now

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## ➤ ERP-Os Completed at:

### ❖ 45 Air Force Bases

- ❑ Primary Bases identified with sites at risk for RIP 2012
- ❑ 90% of Total CTC



### ❖ 4 Joint Bases

## ➤ ERP-O impact has been realized at many bases

- ❖ Sites closed
- ❖ Eliminated risk



# Common Deficiencies

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## ➤ At the Installation Level

- ✓ **Current, concise and representative CSMs not available**
- ✓ **Exit Strategies not defined nor documented**
- ✓ **Performance Metrics not adequately selected, defined or documented**
- ✓ **Decision Logic not well defined or documented**





# Where we are now

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## ➤ Working to achieve ERP-O ROI

### ❖ Implementation Challenges

- ❑ It takes time (12 to 18 months)
- ❑ It takes resolve (consistent committed effort by all stakeholders)
- ❑ It takes teamwork (coordinated efforts with PMO-PM and RPMs)
- ❑ It's hard (technically, programmatically, contractually, regulatory)

### ❖ Actions needed by ERP-O

- ❖ Base review, concurrence, and follow-through for implementation for Phase II and Phase III taskings
- ❖ Getting PMO PM involved to execute the action(s)
- ❖ Regulatory interface



# Did it Work as Planed

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- **ERP-O recommendations were not being implemented years after the visit**
- **Needed a process to transfer responsibility of execution to the base**
- **A Management review was incorporated into ERP-O**
  - ❖ **Recommendations are reviewed by base and management**
  - ❖ **Approval from regulatory agency (if needed) pursued by team with base present**
  - ❖ **Request for funding documents are prepared for approved recommendations**
- **Now it is working**

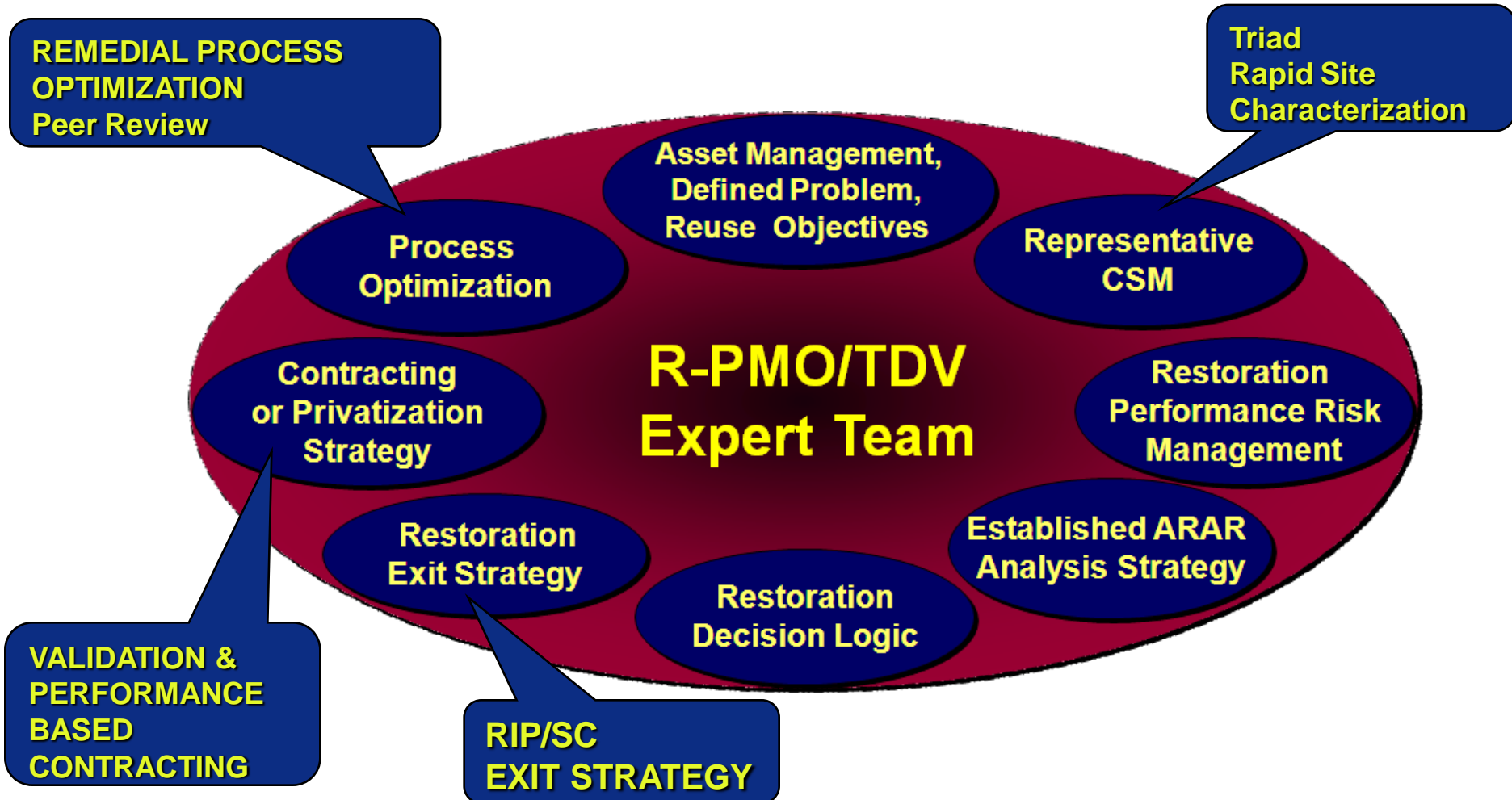


# Original PBM Elements





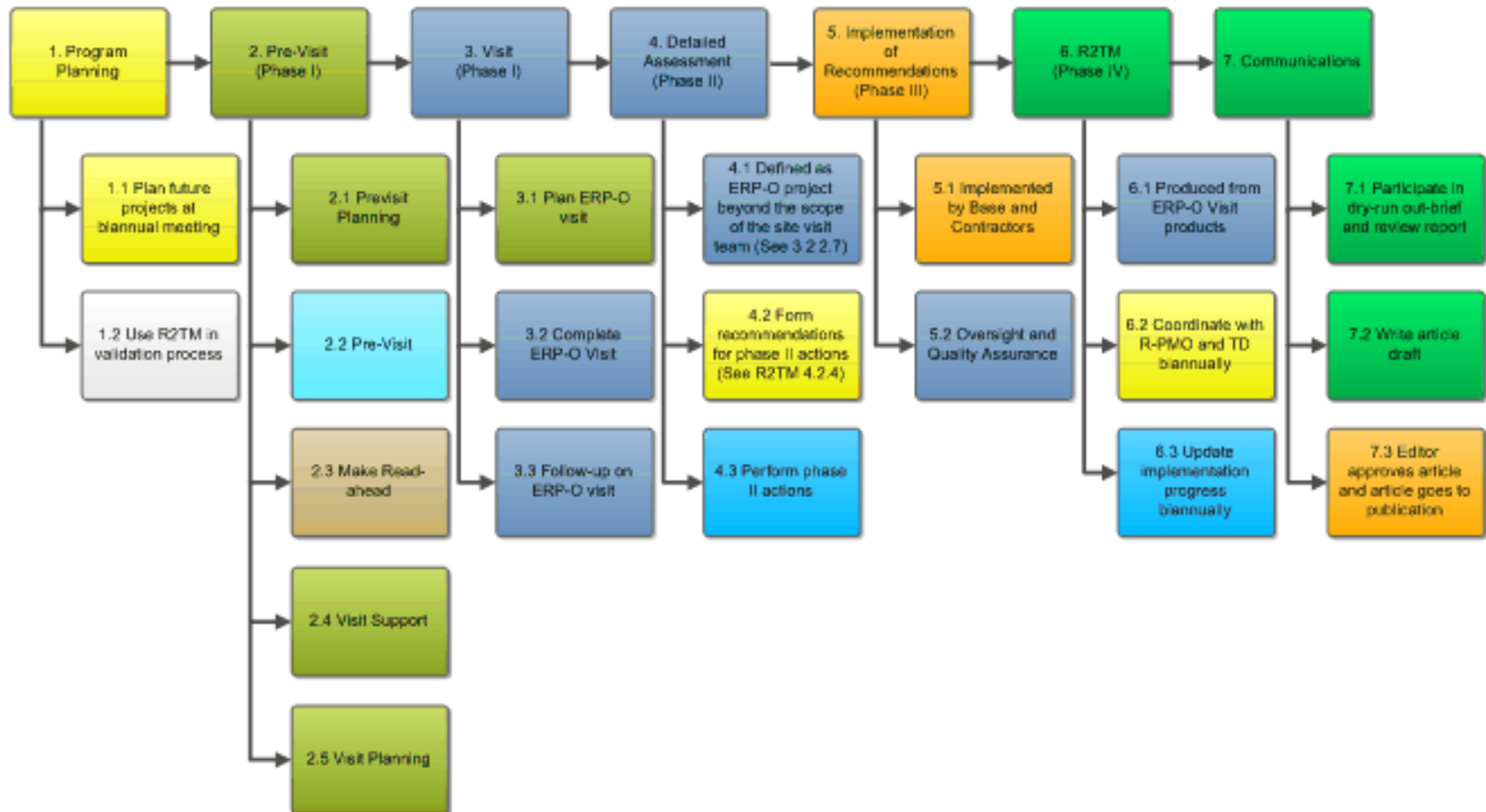
# Current ERP-O Elements

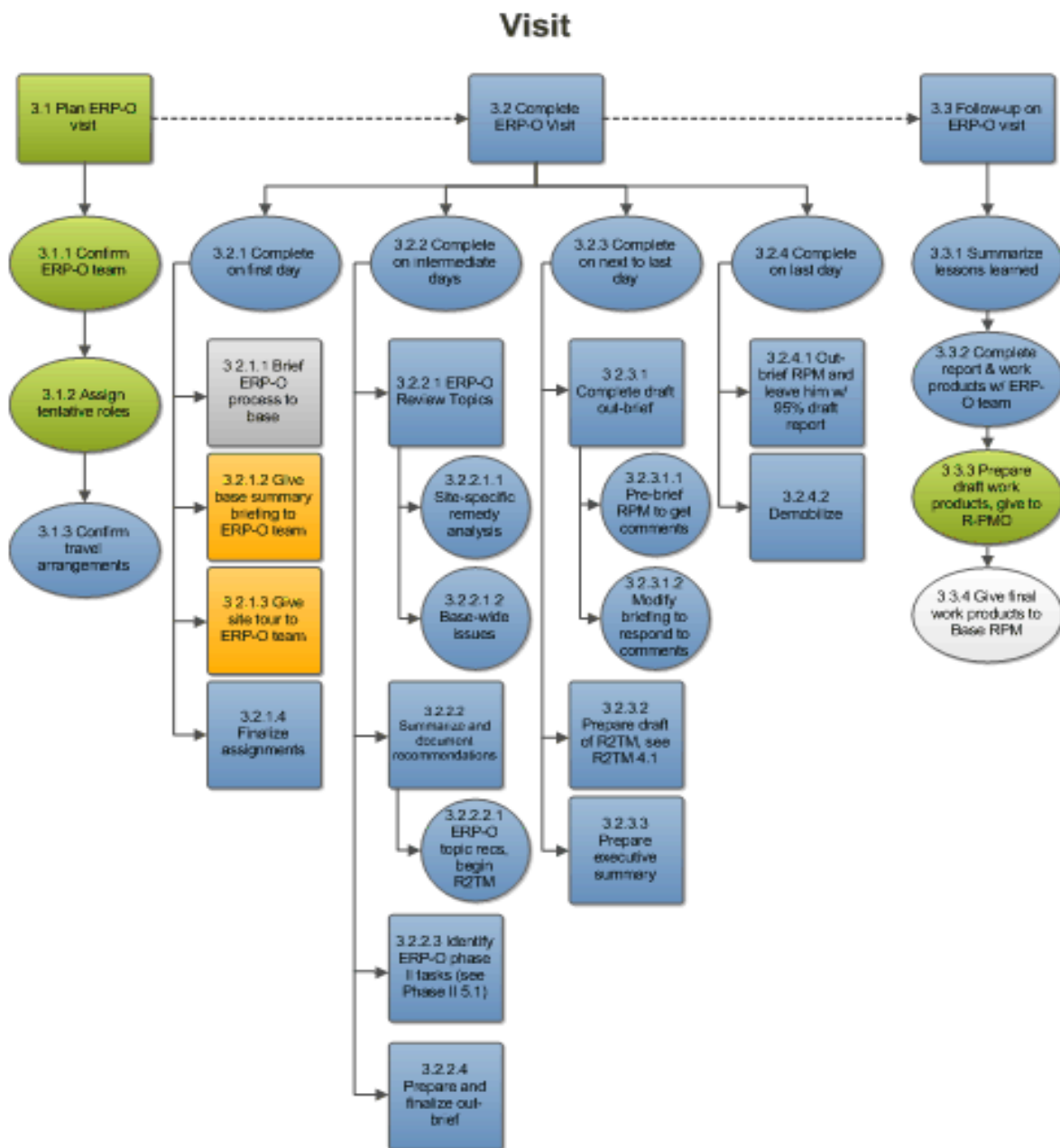




# ERP-O Phases

## High-Level Overview







# ERP-O Tools

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➤ **EDITT**

➤ **R2TM**

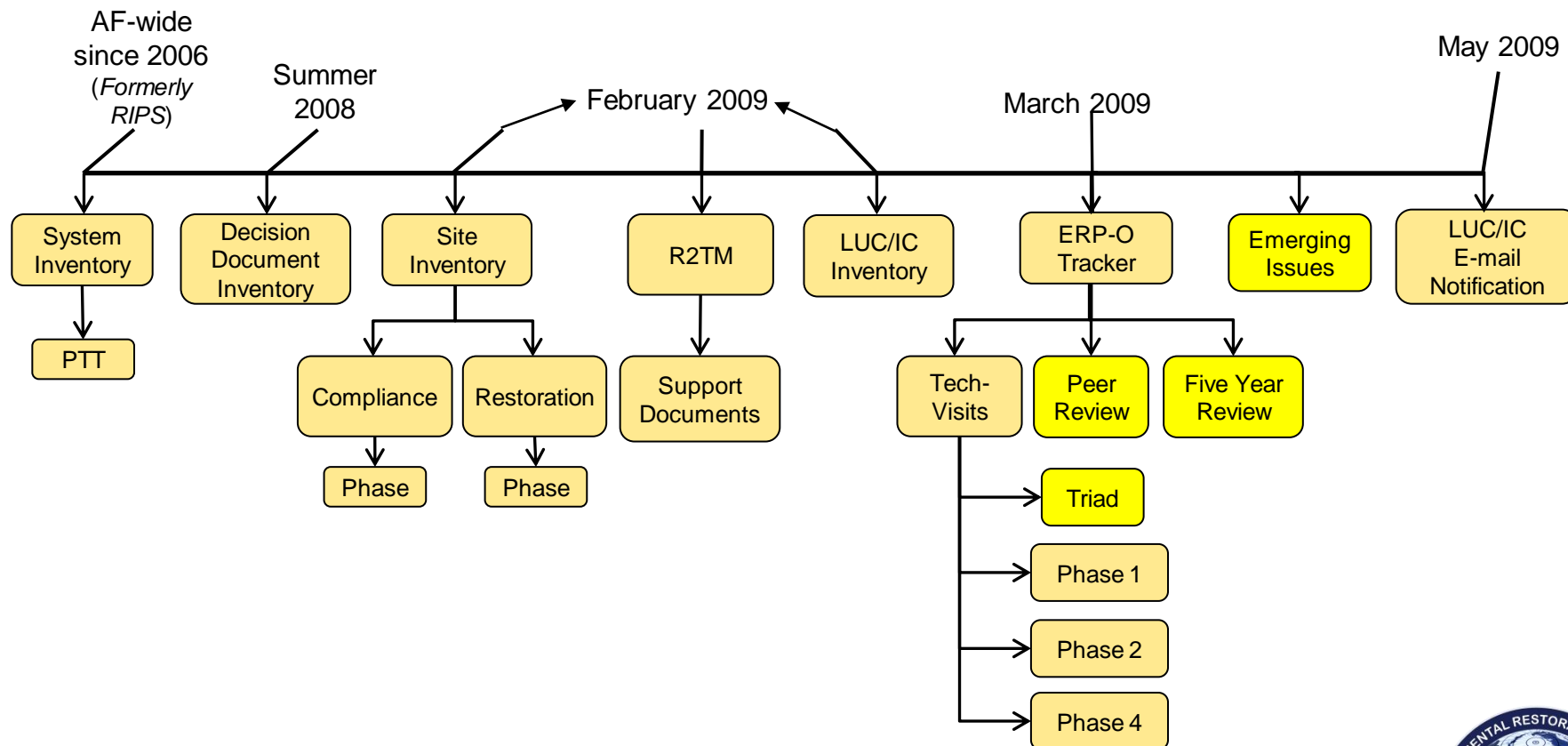
➤ **UAT**

➤ **PTT**

➤ **SRT**



# Environmental Decision Information Tracking Tool (EDITT)



TBD

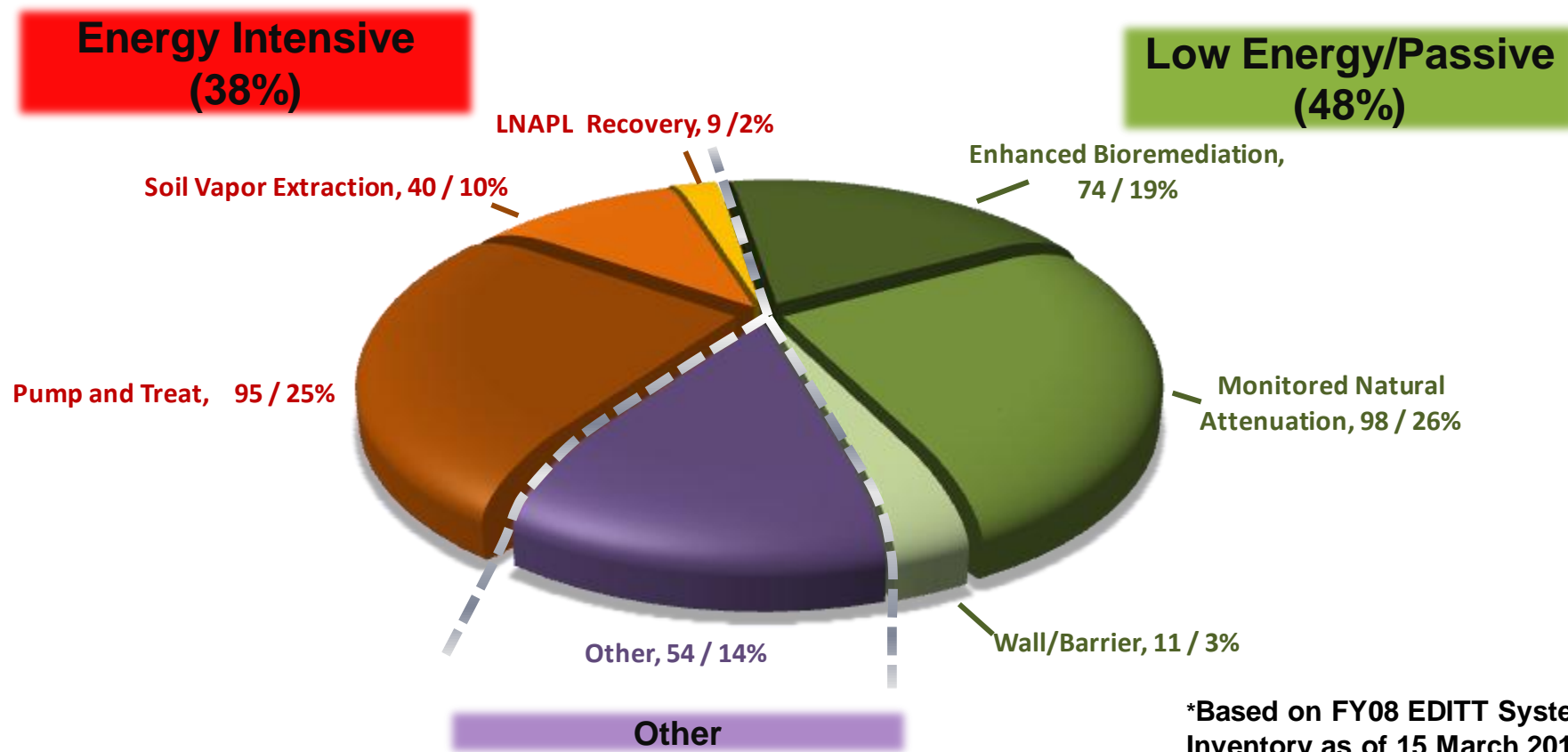






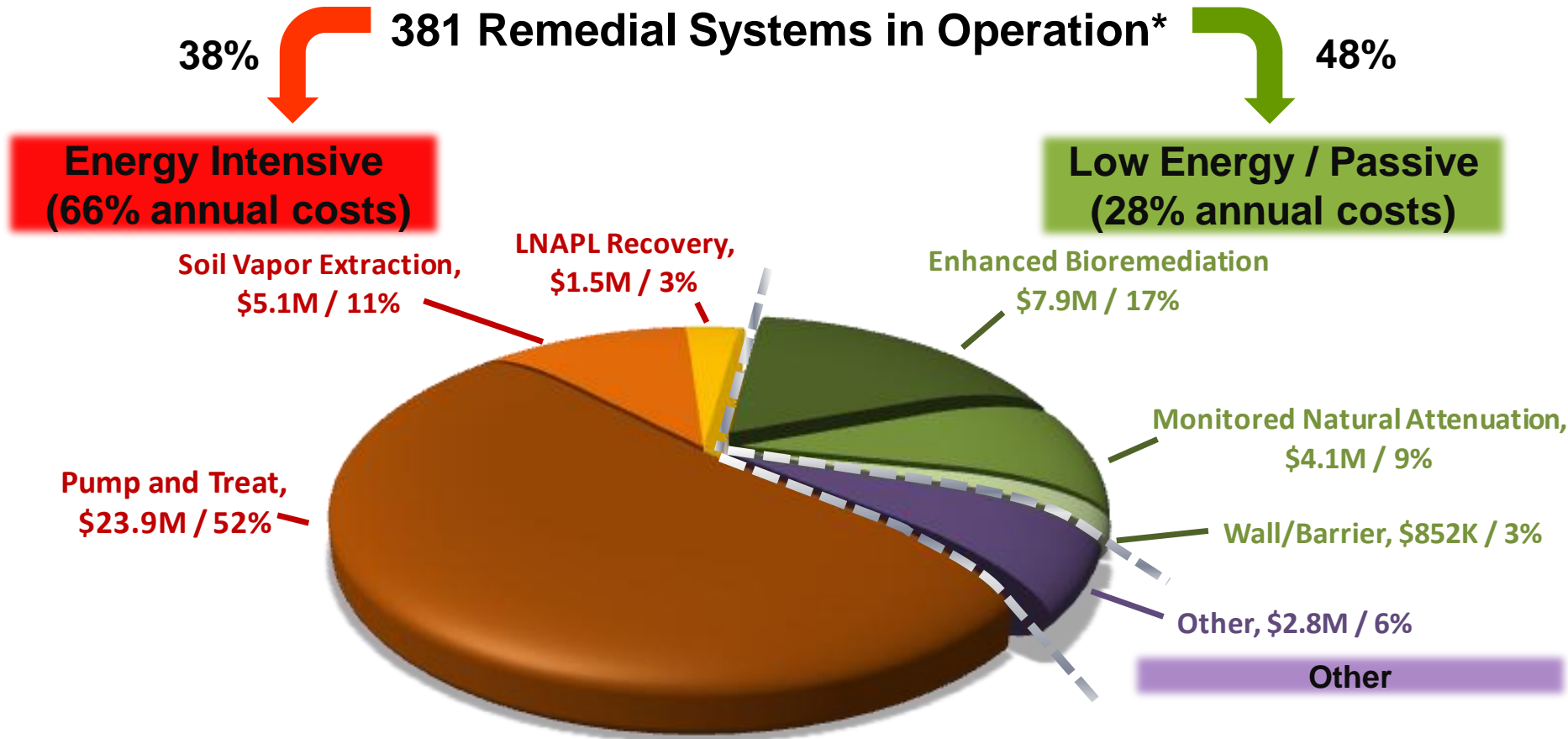
# AF Remediation System Inventory by Technology

381 Remedial Systems in Operation\*





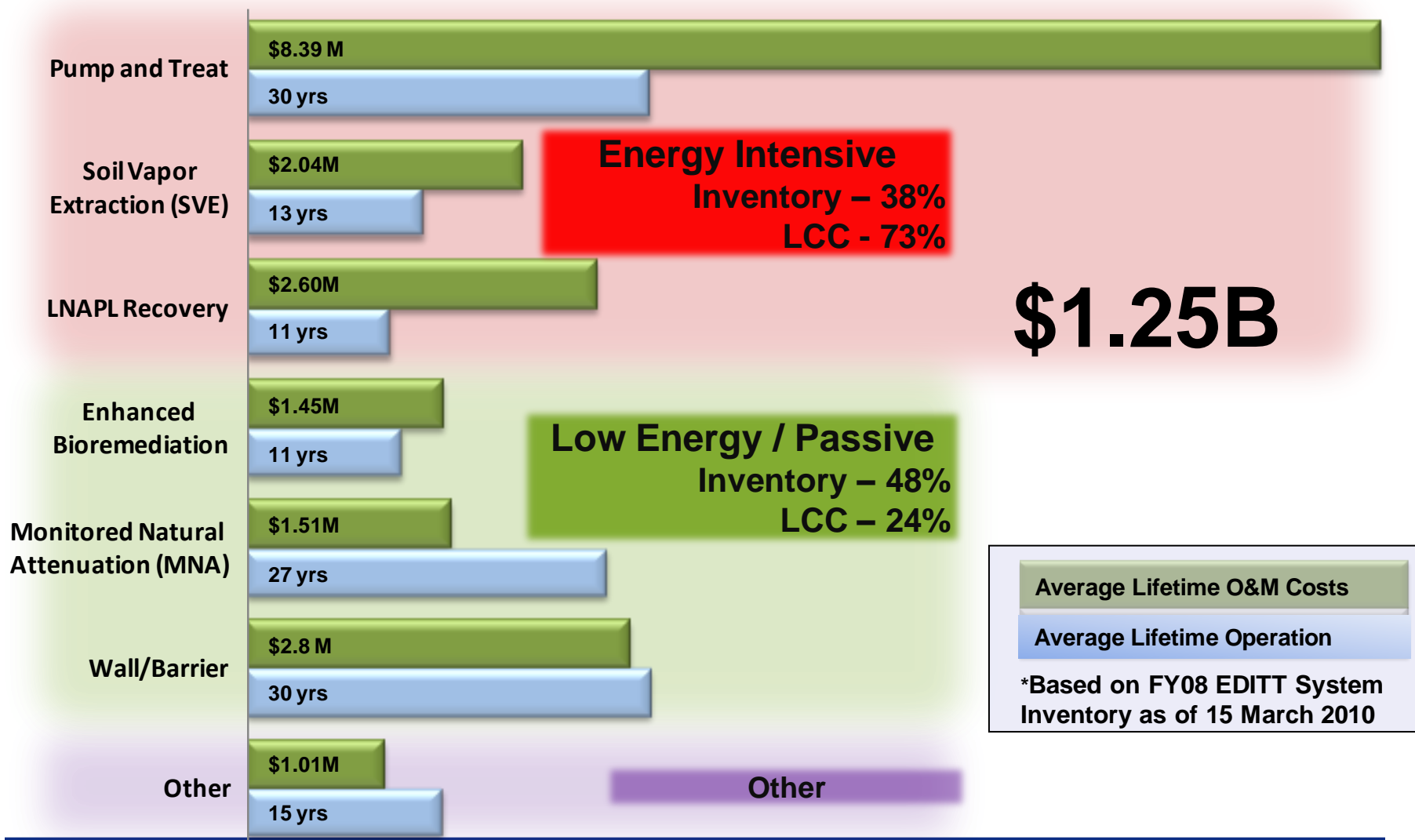
# AF Remediation System Annual Costs by Technology



\*Based on FY08 EDITT System  
Inventory as of 15 March 2010



# Average Life-Cycle Costs by Technology





# Partnerships

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- **ITRC**
- **USACE**
- **USGS**



# Partnerships

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- Interstate Technology Regulatory Council
  - ❖ Participates in ERP-O visits
  - ❖ Co-authored the Exit Strategy Factsheet
  - ❖ Provides support during regulatory interface
  - ❖ Provides free environmental training through the internet and class room
- Developed RPO, PBEM Technical Regulatory guidance
- Developing Remediation Risk Management Tech-Reg guidance
- Developing Green and Sustainable Tech-Reg guidance



# Summary

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- How we got here is a long and tortuous journey
- Over 10 years
- It is essential that we promote wise remediation where we truly manage and when possible eliminate risk
- But we have to stop transferring the risk to others
  - ❖ Digging material to send to a landfill (transfer)
  - ❖ Removing ounces of pollutants from GW while dumping tons in the atmosphere (transfer)



## IMPLEMENT SMART REMEDIATION

## QUESTIONS??